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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/751,082	12/31/2003	Everardo D. Ruiz	ITL.1089US (P18427)	1320
21906	7590	11/29/2006	EXAMINER	
TROP PRUNER & HU, PC 1616 S. VOSS ROAD, SUITE 750 HOUSTON, TX 77057-2631			TRAN, DZUNG D	
			ART UNIT	PAPER NUMBER
			2613	
DATE MAILED: 11/29/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/751,082

Applicant(s)

RUIZ, EVERARDO D.

Examiner

Dzung D. Tran

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Specification***

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-13, 15-19 and 21-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Bjorndahl US Publication no. 2005/0141895.

Regarding claim 1, Bjorndahl discloses in Figure 4, a method comprising:

an up converter 182 (e.g., IF to RF converter) for optically isolating a radio frequency component from a lower frequency component of a transceiver.

Regarding claim 2, Bjorndahl further discloses in Figure 4, an optical bus 184 (page 5, paragraph 0053) for optically isolating a radio frequency power amplifier.

Regarding claim 3, Bjorndahl discloses in Figure 4, the optical bus 162 (page 5, paragraph 0049) for optically isolating a low noise amplifier 160.

Regarding claim 4, Bjorndahl further discloses in Figure 4, the optical bus 162, 184 for optically isolating frequency conversion stages 168, 182.

Regarding claim 5, Bjorndahl discloses the method including linking the radio frequency component and lower frequency component with an optical waveguide 162, 184.

Regarding claim 6, Bjorndahl discloses an analog/optical converter 186 for converting a radio frequency signal to an optical signal using a laser.

Regarding claim 7, Bjorndahl discloses a modulator 178 for optically isolating the radio frequency component from a baseband component.

Regarding claim 8, Bjorndahl discloses an up converter 182 (e.g., IF to RF converter) for optically isolating the radio frequency component from an intermediate frequency component.

Regarding claim 9, Bjorndahl discloses in Figure 4, a wireless device comprising:  
a radio frequency component (e.g., low noise amplifier 160);  
a lower frequency component to operate at a frequency lower than radio frequency (e.g., IF amplifier 170); and  
an optical link 162 to link said components.

Regarding claim 10, Bjorndahl discloses wherein said radio frequency component is a power amplifier 190.

Regarding claim 11, Bjorndahl discloses wherein said radio frequency component is a low noise amplifier 160.

Regarding claim 12, Bjorndahl discloses the device further including a receiver 166.

Regarding claim 13, Bjorndahl discloses the device further including a transmitter 164.

Regarding claim 15, Bjorndahl discloses wherein said lower frequency component is a baseband component (page 5, paragraph 0051).

Regarding claim 16, Bjorndahl discloses wherein said lower frequency component is an intermediate frequency component (page 5, paragraph 0051).

Regarding claim 17, Bjorndahl discloses in Figure 4, a system comprising:

a controller (i.e., Digital signal processing 154);

a radio frequency component (i.e., Low noise amplifier 168);

a lower frequency component (i.e., IF amplifier 160);

an optical link 162 to link said components; and

a wireless interface 158, 192 coupled to said radio frequency component.

Regarding claim 18, Bjorndahl discloses wherein said radio frequency component is a power amplifier 190.

Regarding claim 19, Bjorndahl discloses wherein said radio frequency component is a low noise amplifier 160.

Regarding claim 21, Bjorndahl discloses the device further including a receiver 166.

Regarding claim 22, Bjorndahl discloses the device further including a transmitter 164.

Regarding claim 23, Bjorndahl discloses wherein said lower frequency component is a baseband component (page 5, paragraph 0051).

Regarding claim 24, Bjorndahl discloses wherein said lower frequency component is an intermediate frequency component (page 5, paragraph 0051).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 14, 20 and 25 rejected under 35 U.S.C. 103(a) as being unpatentable over Bjorndahl US Publication no. 2005/0141895.

Regarding claims 14 and 20, Bjorndahl further discloses the device including two frequency conversion stages 168 and 182. Bjorndahl does not specifically disclose for an optical isolator between said conversion stages. However, Examiner take an official notice that optical isolator is well known in the art and it would have been obvious to an artisan at the time of the invention was made to impose the optical isolator between the conversion stages in the system of Bjorndahl. One of ordinary skill in the art would have been motivated to do that in order to isolated the IF and RF signals. Thus, it reduces the signal interference.

Regarding claim 25, Examiner take an official notice that a dipole antenna is well recognized in the art, and it would have been obvious to an artisan at the time of the invention was made to include the dipole antenna in the system of Bjorndahl. One of

ordinary skill in the art would have been motivated to do that in order to transmit and receive the RF signals by one antenna. Thus, it reduces the space of the device.

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Soliman U.S. Publication no. 2003/0060230. Communication system receiver and method for concurrent receiving of multiple channels

b. Rowan et al. U.S. Patent no. 6,529,303. Optical communication network utilizing frequency division multiplexing

c. Tang U.S. Patent no. 5,339,184. Fiber optic antenna remoting for multi-sector cell sites


6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dzung D Tran whose telephone number is (571) 272-3025. The examiner can normally be reached on 9:00 AM - 7:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dzung Tran  
11/18/2006

  
DZUNG TRAN  
PRIMARY PATENT EXAMINER